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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/665,410	09/22/2003	Abdul Rakeeb Abdul Subhan Deshmukh	4062-88	4399

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EXAMINER	
ZUCKER, PAUL A	
ART UNIT	**PAPER NUMBER**
1621	

DATE MAILED: 09/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/665,410	DESHMUKH ET AL.	
	Examiner	Art Unit	
	Paul A. Zucker	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 8-10* is/are rejected.

7)☒ Claim(s) *5-7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 3 recites the limitation " the organic tertiary amine comprises" in line 1. A compound comprises only itself. It is unclear whether Applicants intend that "organic tertiary amine" refers to a compound or composition. Claim 3 is therefore rendered indefinite.
3. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 4 recites the limitation " the organic amide comprises" in line 1. A compound comprises only itself. It is unclear whether

Applicants intend that "organic amide" refers to a compound or composition. Claim 4 is therefore rendered indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
>
> The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:
>
> 1. Determining the scope and contents of the prior art.
> 2. Ascertaining the differences between the prior art and the claims at issue.
> 3. Resolving the level of ordinary skill in the pertinent art.
> 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1, 2, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horwell et al (US 5,846,942 12-1998).

Instantly claimed is a process for preparing alkyl/aryl chloroformates of formula R-OCOCl, the process comprising adding a solution of alcohol of formula R-OH to a mixture of triphosgene, a catalyst, a base and an organic solvent, at a temperature in the range of 0°C to ambient for a time period in the range of 1 to 48 hours to obtain a solid, separating the solid by filtration and removing the solvent from filtrate to obtain the alkyl/aryl chloroformate which is then purified.

Horwell teaches (Column 118, line 60- column 119, line 8) a process for the synthesis of 2-adamantylchloroformate (a cycloalkyl chloroformate). A solution of 2-adamantanol in dichloromethane was cooled in an ice bath. Bis(trichloromethyl)carbonate (triphosgene) was added followed by dropwise addition of pyridine at such a rate that the temperature remained below 20.degree. C. After a further 10 minutes the mixture was warmed to room temperature and stirred for a further 2.5 hours. The dichloromethane was removed in vacuo without heating and the residue slurried with ethyl acetate. The pyridinium hydrochloride (solid) was filtered off and the filtrate evaporated to dryness without heating to yield 2-adamantylchloroformate.

The differences between the instantly claimed process and that taught by Horwell are as follows:

a. Horwell teaches that the reagents are added to a cooled solution of the alcohol instead of the instantly preferred reverse order of addition;
b. Horwell does not purify the product chloroformate.

The Examiner, however, points out that a change in the order of addition of reagents does not, in the absence of unexpected results, define a patentable modification to an old process. The order of addition thus becomes a matter of preference.

The other difference, namely that Horwell does not purify his product, is the result of a determination routinely made by one of ordinary skill in the art upon achieving a

synthesis of a reactive compound. In particular, one of ordinary skill in the art has to determine whether the attempt to purify a highly reactive compound such as a chloroformate will result in degradation, rather than improvement, in product purity. This decision will necessarily take into consideration the properties (hydrolytic stability, for example) of the particular product compound. It is therefore within the ambit of one of ordinary skill in the art to determine whether purification is desirable and, if so, the method for that purification.

Thus one of ordinary skill in the art would have been motivated to modify the process to produce a more convenient process in which the alcohol is added in solution since that method minimizes the need for handling toxic and corrosive materials such as amines and would obviate the concern regarding temperature control during addition of the base. Because a change in order of addition of reagents would not be expected to affect the reaction, there would have been a reasonable expectation for success.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art.

5. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horwell et al (US 5,846,942 12-1998) as applied to claims 1, 2, 9, and 10 above, and further in view of Eckert et al (Angewandte Chemie, International Edition in English, Triphosgene, a Crystalline Phosgene Substitute, 1987, pages 894-895).

Instantly claimed is a process for preparing alkyl/aryl chloroformates of formula R-OCOCl, the process comprising adding a solution of alcohol of formula R-OH to a mixture of triphosgene, a catalyst, a base and an organic solvent wherein the base is an organic amine or amide such as triethylamine or dimethylformamide, respectively.

The difference between the process taught by Horwell and that instantly claimed is that Horwell teaches only the use of the tertiary amine pyridine while the use of triethylamine or dimethylformamide (DMF) are instantly claimed.

Eckert, however, teaches (Page 895, bottom, Table 1, entry a) process for the formation of alkyl chloroformates in which pyridine is employed as base. Eckert further suggests (Page 895, bottom, Table 1, entries f and g) that the bases triethylamine and DMF can be used instead of pyridine and exemplifies their use in closely mechanistically related processes. Eckert further teaches (*ibid*) that reaction proceeds in much shorter times with triethylamine and DMF than pyridine.

Thus one of ordinary skill in the art would have been motivated to replace pyridine as base in the process of Horwell in order to produce a process in which less time is required for reaction. There would have been a reasonable expectation for success based upon Eckert's teaching of the suitability of triethylamine and DMF for use in the process.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horwell et al (US 5,846,942 12-1998) as applied to claims 1, 2, 9, and 10 above, and further in view of Bonnard et al (US 6,696,590-B2 02-2004).

Instantly claimed is a process for preparing alkyl/aryl chloroformates of formula R-OCOCl, the process comprising adding a solution of alcohol of formula R-OH to a mixture of triphosgene, a catalyst, a base and an organic solvent wherein the alcohol is benzyl alcohol.

The difference between the process taught by Horwell and that instantly claimed is that Horwell teaches only the use of the alcohol 2-adamantanol while the use of benzyl alcohol is instantly claimed.

Bonnard, however, teaches (Column 4, lines 16-36) a process for the synthesis benzyl chloroformate from phosgene gas and benzyl alcohol.

One of ordinary skill in the art would have been motivated to employ the process of Horwell to make benzyl chloroformate by employing benzyl alcohol in order to avoid the use of the highly toxic gas phosgene which has a toxic level which is below the limits of the unaided human senses to detect. There would have been a reasonable expectation of success based upon the expectation that the primary alcohol would react without difficulty.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art.

Claim Objections

7. Claims 5-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Allowable Subject Matter

8. Claims 5-7 are drawn to allowable subject matter. The following is a statement of reasons for the indication of allowable subject matter: The closest prior art, Horwell et al (US 5,846,942 12-1998), Eckert et al (Angewandte Chemie, International Edition in English, Triphosgene, a Crystalline Phosgene Substitute, 1987, pages 894-895) and Bonnard et al (US 6,696,590-B2 02-2004) either alone or in combination neither teaches nor fairly suggests the use of inorganic carbonate and bicarbonate bases in the phosgenation process employing triphosgene.

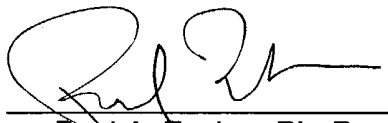
Conclusion

9. Claims 1-10 are pending. Claims 1-4 and 8-10 are rejected. Claims 5-7 are objected to.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Zucker whose telephone number is 571-272-0650. The examiner can normally be reached on Monday-Friday 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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